

## MEMORANDUM

STATE OF ALASKA

TO: Craig Whitmore  
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Sport Fish Division  
Anchorage

DATE: August 1, 1990

ALASKA DEPT. OF  
FISH & GAME

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FROM: Kent Roth *Kent*  
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SUBJECT: Anchorage Area. REGION II  
Escapement Surveys HABITAT DIVISION

Following are the 1990 salmon escapement survey data for the Anchorage area streams.

Date	Stream	Chinook		Sockeye		Chum	
		Live	Dead	Live	Dead	Live	Dead
7/17	Ship Creek						
	Hatchery for Brood Stock	93	1	0	0	0	0
	Hatchery to Reeve Blvd.	416	3	0	0	4	0
	Reeve Blvd. to Post Rd.	192	4	0	0	0	0
	Post Rd. to Dam	50	2	0	0	1	0
	Dam to Mouth	0	0	0	0	0	0
	Ship Creek Total	751	10	0	0	5	0
7/18-20	Campbell Creek						
	North Fork	75	3	256	36	1	0
	South Fork	175	12	0	0	1	0
	Forks-Lake Otis	50	1	6	3	0	0
	Lake Otis to Old Seward	38	3	4	2	0	0
	Old Seward to Arctic	114	1	8	4	0	0
	Arctic to Dimond Blvd.	15	0	0	0	0	0
	Campbell Creek Total	436	22	274	43	2	0
7/17	Rabbit Creek	8	0	0	5	0	0
7/26	Indian Creek	1	0	0	0	0	0
7/27	Eagle River-South Fork	245	63	0	0	1	0
8/1	Eagle R.-Upper Slough	16	2	0	0	0	0
8/1	Bird Creek	41	3	0	0	*	0
7/30	Penguin Creek	61	4	0	0	4	0

\* Chums were observed but water conditions prevented a count.

### Ship and Campbell Creeks

The timing and survey conditions were excellent during the Ship Creek survey. All of the fish had moved upstream of the Chugach power plant dam. Most (63%) of the kings observed in Ship Creek were located in the short reach of creek from the hatchery downstream to Reeve Boulevard. Survey conditions were also good for most of the reaches of Campbell Creek. However, the timing of the survey appeared to be a little early this year as many of the kings were still downstream of the forks. As in past seasons, sockeye in Campbell Creek were observed primarily in the North Fork. A few chum salmon were observed in both Ship and Campbell Creeks during the surveys. The bad news is that in Campbell Creek, one of the chums was up the North Fork while the other was in the South Fork.

Besides the basic litter and the occasional appliance, the primary problem I noted during my surveys of Campbell Creek was the abundance of lumber, primarily plywood. Most of this material is scattered downstream of the trail crossings associated with the Tudor Track dog mushing trails. The debris is scattered downstream for up to two miles below some of the crossings and in some cases is causing partial barriers to upstream fish passage. I presume all of this wood is directly a result of the lack of maintenance by the associated mushing groups and have discussed options with Phil Brna for the removal of the debris. The largest concentrations of debris were observed in the North Fork downstream of Campbell Airstrip Road.

### Rabbit Creek

The only salmon observed in Rabbit Creek upstream of the New Seward Highway were in the area of the viewing boardwalk. No fish were observed upstream from Potter's Marsh. Two king salmon were found below the highway and 10 coho, 5 chum and approximately 400 pink salmon were observed. Many of the pink salmon were spawning in the intertidal reach.

The upstream passage of adult salmon through the culverts was difficult at best due to the placement of flow control structures covering the outlets of the culverts. Two of the three culverts were complete barriers to upstream migration while the third allowed only minimal opportunity for upstream passage. The lack of an adequate plunge pool and holding area below the culverts coupled with the fact that the culverts were perched except at high tide compounded the passage problem. Mortalities as a direct result of passage attempts were evident. Phil Brna and Stewart Seaberg (Habitat Division) have been working in conjunction with the Department of Transportation and the Alaska Railroad to solve the problem. They have increased the size of the plunge pool and have added step pools for holding. The flow control structures have been partially opened to allow passage and plans are to eventually remove them completely. More permanent step pools are still necessary. In addition, the culverts themselves are long and water velocities are high and unrestricted through the length (-90 feet) of the culverts. The high velocities and shallow water levels inside the culverts may also be restricting upstream movement.

A final observation on salmon passage in Rabbit Creek concerns the area downstream from the Old Seward Highway. The reach of stream entering the marsh is braided and shallow (1-2" in places). Passage is severely restricted in this area. The instream channelization work done in the reach upstream from the marsh also needs additional modifications. The channel is relatively wide and shallow and may restrict upstream passage at low water levels. Selected narrowing and defining of the channel at these sites coupled with instream structures and bank stabilization would greatly improve this reach for fish passage and spawning and rearing habitat.

#### Eagle River

A total of 326 king salmon were counted during the surveys of Eagle River. Most (95%) were in the South Fork from the falls downstream to its confluence with Eagle River. The remainder were observed in the clearwater creek which originates near the Visitor's Center.

#### Bird Creek

A total of 109 kings were observed in Bird Creek and its primary tributary, Penguin Creek. Pink salmon were abundant (thousands) and chums were observed but no counts for these two species were conducted. The lower 1.5 miles of Penguin Creek were surveyed and Bird Creek was surveyed from its mouth upstream to the barrier falls approximately 0.67 miles upstream. Anglers have been numerous (counts of 12-100 anglers) since the arrival of the pink salmon. The fishery appears to be very orderly with most anglers fishing flies or Pixies. Tide stage has not influenced the angler counts as they are fishing the creek at all hours of the day.

#### Other Streams

Portions of Indian Creek were surveyed and one king salmon was observed in the reach upstream of the Indian Pass trailhead. A few pink salmon were observed below the railroad culverts at tidewater. No survey was conducted in the middle reach.

No salmon were observed in the surveyed portions of Fire Creek. Sockeye salmon were observed in 6-Mile Creek and Alan Richmond, the Elmendorf Natural Resource Planner, has passed 1,292 sockeye through the weir so far this season. In addition, 1,326 pink, 1 chum, 3 king, and 16 coho salmon have been passed through the 6-Mile Creek weir. I will provide on the information on Ingram Creek as the data becomes available.

In Potter Creek, 6 pink salmon were found above the highway culvert and approximately 50 pinks were downstream of the culvert. No fish were observed in Little Rabbit Creek. The culvert on Little Survival Creek is all but buried at the downstream end as it passes under the Old Seward Highway. Culvert and rechannelization improvements on this stream would improve juvenile salmon rearing habitat and passage.

### Aerial Survey

The helicopter survey of the area streams provided significantly lower escapement counts than did foot surveys. Trees and streambank vegetation prevent accurate aerial surveys on all the streams except Bird Creek and the upper Eagle River slough. I suggest that aerial surveys be discontinued for escapement counts in the Anchorage area. An aerial survey will be useful beginning in 1993 to evaluate the success of the king salmon smolt stocking program in Eagle River.

On all of the streams surveyed, illegal fishing and poaching were apparent. I believe the king salmon escapements in Eagle River and in Campbell, Ship, Rabbit, Bird, and Penguin Creeks were reduced significantly by illegal fishing. This trend is continuing on coho salmon as they begin entering the area streams.

cc: Krasnowski  
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